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## THE PRODUCTION OF OATS

Oat Crop in the United States Has Increased Twelve Per Cent During the Past Five Years

By C. W. WARBURTON

The oat crop ranks fifth in value among the farm crops of the United States, being exceeded by corn, cotton, wheat and hay. It is third among the cereals, being exceeded by corn and wheat. The acreage devoted to oats is slightly larger than that of the other crops mentioned. Last year's oat crop, slightly over 1,000,000,000 bushels, was about 275,000,000 bushels larger than the wheat crop of that year, but the value was only \$408,000,000, as compared with \$730,000,000, for wheat. The corn crop was valued at \$1,650,000,000, or more than four times as much as the oat crop. The farm value of all cereals for last year was estimated at \$3,000,000,000, of which amount the oat crop represented about 13 per cent.

The average production of oats in the United States for the last ten years was 869,954,000 bushels, produced on 29,643,000 acres. The corn crop for the same period was 2,453,169,000 bushels, grown on 95,028,000 acres, and the wheat crop 659,509,000 bushels, produced on 45,678,000 acres.

The five States leading in the production of oats for the ten-year period were Illinois, Iowa, Wisconsin, Minnesota and Nebraska. The diagram shows the proportion of the total crop of the United States grown in each of the States producing more than 10,000,000 bushels. The sixteen States shown grew nearly 90 per cent of the total crop. Illinois and Iowa each produced nearly 14 per cent, while approximately 9, 8, and 6 per cent were produced in Wisconsin, Minnesota and Nebraska, respectively. In acreage devoted to oats Iowa slightly exceeds Illinois. Wisconsin, Minnesota and Nebraska follow in the order named.

The world production of oats in bushels is greater than that of either corn or wheat, but as its weight per bushel is much less, the total production in pounds is smaller than that of either of those crops. The average annual world production of oats for the past five years was 3,694,702,000 bushels; of corn, 3,443,169,000 bushels; and of wheat, 3,336,789,000 bushels. The actual world production of all these crops, particularly of oats and wheat, is considerably larger than these figures, no statistics being available for South America and for a large part of both Asia and Africa. The production of oats in Africa is small, but in South America and in some portions of Asia for which no figures are published it is considerable. The 1909 crop of the world was about one-fifth larger than that of any of the previous four years, reaching a total of 4,295,865,000 bushels. For the five years the average European production of oats was 2,393,705,000 bushels, or practically two-thirds of the crop of the world. Russia, Germany, France and Austria-Hungary are the leading European countries in the production of oats. North America produced 1,172,124,000 bushels, nearly four-fifths of which were produced in the United States.

For 1910, the fifth crop in the United States, in point of value is oats, the value of which is \$380,000,000, or 12 per cent above the average of the

five preceding years. In quantity the oat crop this year is magnificent. The crop exceeds 1,000,000,000 bushels, the precise estimate standing at 1,096,396,000 bushels, or 22 per cent greater than the average of the five preceding years.

The production of oats is practically confined to the Temperate Zones. The crop does best in cool, moist climates and will not thrive in the warmer regions unless the water supply is ample.

Good spring oats are seldom produced in the Southern part of the United States or in southern Europe, while the northern limit of production is near the Arctic Circle, in Norway and Alaska. The crop is very generally grown in the central and northern portions of the North Temperate Zone.

The greater portion of the oat crop of the United States is fed on the farms where it is grown. During the last ten years only 23.7 per cent of the crop was shipped out of the section of the country where it was grown.

The average annual shipment for ten years was 246,000,000 bushels. The smallest proportion of the crop shipped out of the county where grown was of the small crop of 1901, 19.5 per cent and the largest proportion was the crop of 1909, 32.7 per cent. The largest shipment of any one crop was of that of 1909, nearly 330,000,000 bushels.

### FOUR-ROOM FIREPROOF FARM-HOUSES.

According to a recent consular report, a builder of Oklahoma writes the United States Bureau of Manufactures that he finds it profitable to build four-room cement houses and sell them complete with cisterns, front and rear porches of cement, and out-building, including the ground, at \$1,000, on the installment plan.

He is doing this 35 miles from a railroad station, notwithstanding heavy freight charges of 25 cents per hundredweight drayage on all cement, lumber, hardware, and all other building material, except sand. The cottages in question have cement floors, steel ceilings, partition walls of hollow blocks, as well as outside walls. Although the roofs are shingled, the contractor says that the whole structure is practically fireproof and constitutes a very substantial building.

### OXEN STILL IN USE.

In some parts of New England and some localities of the South ox-teams are still used on many farms. A pair of well-broken oxen will do a tremendous amount of work and at about the same expense that it takes to keep a team of horses. Thoroughly broken when young, they become very gentle, and are usually tractable under trying conditions. They are easily managed by a boy and while not exactly fitted for all-round work, make an excellent team for the small farmer.

It is reported that an Oregon farmer has succeeded in grafting alfalfa roots on the roots of tame strawberries and producing a deep-rooting vine which produces three crops of berries in one season.

## HANDLING AND CARE OF MILK

It is Well Known That Certain Diseases are Disseminated Through Milk; Every Effort Should be Made to Have it Pure and Clean

By L. A. ...

Preventing changes in milk is a question of preventing the introduction of bacteria into milk and of checking the growth or destroying them when they are present. The production of milk reasonably free from bacteria is a simple question of cleanliness.

There are many simple rules and methods for handling milk, requiring little extra labor and no added expense which will materially increase the healthfulness and keeping quality of the product. Any precaution that reduces the dust in the stable at milking time reduces the initial number of bacteria in the milk. The cows should not be fed before milking. Cobwebs and other dirt can be easily removed from the ceiling. The stable floor should be so arranged that the dirt on the udders and udders of the cows will be reduced to a minimum. The daily use of a brush will add greatly to the efficiency of these precautions. Care should be taken that the cows do not have to wade through filth in the barnyard.

Even with the greatest precaution some bacteria get into the milk, and further precautions must be taken to prevent their undue multiplication. The practical way to accomplish this is by control of the temperature of the milk. Advantage is taken of the natural law governing the limits and rapidity of growth of bacteria at different temperatures. The milk should be cooled at once to a temperature as near the freezing point as circumstances will permit.

On farms where water is supplied by a windmill it is very easy to arrange the water trough so that the water flows from the pump through a trough or tank in which the cans of milk may be set to cool. This is a slow method, but much better than nothing.

It is not sufficient merely to cool the fresh milk. To insure good results it must be kept cold until used. The housekeeper who leaves her bottles of milk in the sun or standing in a warm kitchen should not blame the milkman for sour milk.

Chemicals having an injurious effect on bacteria are sometimes used to retard the growth of bacteria in milk and thus prolong the time within which it may be sold. This practice is universally condemned by public opinion.

Heat is frequently applied to milk to destroy a part or all of the bacteria. Complete destruction of all bacteria in any substance is sterilization; pasteurization is a term used to designate a process by which milk or other fluids are heated to destroy part, but not all, of the bacteria. Pasteurization may be "continuous" or "intermittent"; in the first method the milk flows in a continuous stream through the pasteurizer, where it is heated to a required temperature by steam or hot water; in the second method the milk is heated in a similar way, but is held at the pasteurizing temperature for some time.

The temperature for pasteurizing varies greatly. As a general rule, to insure good results, the temperature must be increased as length of exposure is decreased. When the milk is held for twenty to thirty minutes the temperature may be varied from 140 degrees to 160 degrees F. The former

is the lowest point at which the bacillus of tuberculosis is destroyed. To make the destruction of this bacillus certain the milk must be held at 140 degrees for at least twenty-five minutes and be constantly stirred.

Milk may be efficiently pasteurized in the household by setting the bottle of milk in a vessel containing water, and heating the water until the milk reaches a temperature of about 150 degrees. It then may be removed from the stove and allowed to stand for twenty-five minutes. The temperature of the water will be above that of the milk, and while it slowly cools the milk will be thoroughly heated. It should then be chilled at once and kept cold until used.

Milk may be sterilized by repeated boilings. This is usually accomplished by steaming on three or four successive days. After each boiling it should be held at room temperature for twenty-four hours to allow the spores to germinate and reach the vegetative stage.

While bacteria are in no way essential to milk, they may be considered as normally present in milk, cream, ice cream, butter and cheese. They may even occur in milk or its products in very large numbers without making it an unsafe food or in any way decreasing its food value.

Bacteria known to produce disease are seldom isolated from or counted in milk, and bacteriological counts should be taken merely as an indication of the way in which milk has been collected or the temperature at which it has been held. High numbers usually indicate unsanitary conditions, careless handling or old milk.

### THE GERMINATION OF WHEAT.

An extensive investigation to determine the relation of the size, weight and density of the kernel to the germination of wheat has developed the following results.

The heavier, better developed kernels in a head of wheat germinate better than the lighter kernels in the same head.

Grading according to size will not select the kernels which will germinate the best.

The germination is directly correlated with the density of the kernels.

The germination is independent of the size of the kernels.

The above points have been indicated by the results of the tests. It is believed that the samples used were large enough to give accurate determinations of the germinating ability of the different samples of wheat.—J. G. Lill, Kansas State Agricultural College.

Dan Patch, the grand champion sire horse of the world, has recently been purchased by Mr. John J. Mitchell, president of the Illinois Trust and Savings Bank, Chicago. The price paid for the animal was \$10,000. Dan Patch, named after the famous pacer, has taken the championship honors for three successive years.

The State Commission of Illinois last year placed in the streams of that State more than 16,000,000 young fry, including black bass, croppies, sun fish, cat fish, white fish, rainbow trout and white perch.